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EXAMINER	
FLANAGAN, KRISTA M	

ART UNIT	PAPER NUMBER
2631	

DATE MAILED: 04/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/025,090	MARGULIS ET AL.
	Examiner	Art Unit
	Krista M. Flanagan	2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 December 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 December 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the informal drawings are not of sufficient quality. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Specification

2. The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

3. The abstract of the disclosure is objected to because it is not presented on a separate sheet apart from any other text including title and express mail information. Correction is required. See MPEP § 608.01(b).

Claim Objections

4. Claims 4, 5, 6, 9, 11, 12, 13, 14, 17, and 23 objected to because of the following informalities:

a. Regarding claims 4, 5, 6, 9, 11, 12, 13, 14, 17, and 23, the phrase "the at least one" needs to be corrected to read either "the" or " at least one".

b. Regarding claim 17, "a" needs to be inserted as follows, "multi-rate channels in **a** high-rate path". Appropriate correction is required.

5. Claim 5 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. "Corresponding" is a term that is more broad than the term "different". Therefore, claim 5, with the statement "corresponding spreading codes", fails to limit claim 3, which states "different spreading codes".

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3, 4, 17, 18, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakayasu, US Patent No. 6,515,979.

8. Regarding claim 1, Nakayasu discloses a spread-spectrum receiver comprising: a high-rate path to receive multi-rate channels (See column 1, lines 26-30 where the high rate path/multi-rate channel receives the visual data); and a low-rate path to receive fixed-rate channels (See column 1, lines 26-30 where the low rate path/fixed rate channel receives the call data).

9. Regarding claim 3, which inherits all of the limitations of claim 1, Nakayasu discloses a receiver wherein the high-rate path comprises at least one high-rate rake finger to despread spread-spectrum signals comprising the multi-rate channels, each multi-rate channel having a

different spreading code allowing for the substantially simultaneous reception of several multi-rate channels (See figure 2 and column 3, line 53 to column 4, line 4).

10. Regarding claim 4, which inherits all of the limitations of claim 3, Nakayasu discloses a receiver wherein at least one high-rate rake finger comprises: a set of correlators (See figure 2, block 211), each correlator to despread one multi-rate channel of the several received multi-rate channels with a corresponding spreading code (See column 3, lines 42-52); a framer to separate control symbols and data symbols for each of the despread multi-rate channels (See Column 3, lines 53-58); and a buffer for each multi-rate channel to store the control and data symbols for the corresponding multi-rate channel (See column 4, lines 4-8).

11. Regarding claim 17, Nakayasu discloses a method for receiving spread-spectrum signals comprising: despreading multi-rate channels in a high-rate path; and despreading fixed-rate channels in a low-rate path. (See figure 2 and column 1, lines 26-30 where any one of the paths could be a high-rate path to receive multi-rate channels and where any one of the paths could be a low-rate path to receive fixed-rate channels).

12. Regarding claim 18, which inherits all of the limitations of claim 17, Nakayasu discloses a method for receiving spread-spectrum signals wherein at least one high-rate rake finger despreads spread-spectrum signals comprising the multi-rate channels, wherein each multi-rate channel has a different spreading code allowing for the substantially simultaneous reception of several multi-rate channels (See figure 2 and column 3, line 53 to column 4, line 4).

13. Regarding claim 19, which inherits all of the limitations of claim 18, Nakayasu discloses a method for receiving spread-spectrum signals wherein the despreading the multi-rate channels comprises: despreading one multi-rate channel of the several received multi-rate channels with a

corresponding spreading code (See figure 2, block 211 and column 3, lines 42-52); separating control symbols and data symbols for each of the despread multi-rate channels (See Column 3, lines 53-58); and buffering the control and data symbols for each multi-rate channel (See column 4, lines 4-8).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. Claims 5, 6, 9-16, 20, and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakayasu, US Patent No. 6,515,979 in further view of Narvinger et al., US Patent No. 6,381,229.

16. Regarding claim 5, which inherits all of the limitations of claim 4, Nakayasu discloses a receiver wherein there is at least one high-rate rake finger. Nakayasu fails to disclose a high-rate finger further comprising a code generator to generate the corresponding spreading codes for despreading each of the several multi-rate channels. However Narvinger discloses a rake receiver that further comprising a de-spreading code generator to generate the corresponding spreading codes for despreading each of the several multi-rate channels (See figure 9, block 413). It would have been obvious to one of ordinary skill in the art to use the de-spreading code generator of Narvinger in the design of Nakayasu to generate the spreading codes for each of the multi-rate channels to keep from having to store all of the possible codes.

17. Regarding claim 6, which inherits all of the limitations of claim 5, Nakayasu discloses a receiver wherein there is a rake finger. Nakayasu fails to disclose a receiver wherein the rake finger further comprises: a pilot channel correlator to despread a pilot channel having a predetermined spreading factor; and a pilot channel buffer to store symbols from the despread pilot channel received from the pilot channel correlator and wherein the code generator generates a spreading code for despreading by the pilot channel correlator. However, Narvinger discloses a receiver wherein the code generator generates a spreading code for despreading by the pilot channel correlator (See figure 9, block 414). It would have been obvious to one of ordinary skill in the art to use the pilot de-spreading code generator of Narvinger in the design of Nakayasu to generate the spreading codes for each of the multi-rate channels to keep from having to store all of the possible codes.

18. Regarding claim 9, which inherits all of the limitations of claim 3, Nakayasu discloses a receiver wherein the high-rate path further comprises a high-rate rake to read symbols from at least one high-rate rake finger (See figure 2, block 23). Nakayasu fails to disclose a high-rate path further comprising a high-rate rake to read symbols from at least one high-rate rake finger and to multiply the symbols by a channel estimation. However, Narvinger discloses a rake to read symbols from at least one rake finger and to multiply the symbols by a channel estimation (See figure 6, block 106 and column 10, lines 25-29 and 37-39). It would have been obvious to one of ordinary skill in the art to multiply the symbols from the rake in Nakayasu by a channel estimation to correct the output from the rake.

19. Regarding claim 10, which inherits all of the limitations of claim 9, Nakayasu and Narvinger disclose a receiver wherein the high-rate rake is composed of at least one finger

engine to multiply the symbols with the channel estimation (See above rejection to claim 9). Narvinger discloses a rake receiver with a combiner to combine multipath components of the multi-rate channels (See column 12, lines 35-43). It is well known in the art to use a combiner to combine the data from the fingers of a rake.

20. Regarding claim 11, which inherits all of the limitations of claim 9, Nakayasu and Narvinger disclose a receiver wherein the high-rate rake finger is one of a plurality of high-rate rake fingers, each high-rate rake finger is used to despread a multipath component of each multi-rate channel, and wherein the finger engine is one of a plurality of finger engines, each finger engine to multiply the channel estimation with the symbols from a corresponding high-rate rake finger for each of the several multi-rate channels (See the rejection to claim 9 above and figures 6 and 7 from Narvinger), and wherein the combiner coherently combines symbols from the multipath components from the finger engines for the several multi-rate channels (See column 12, lines 35-43). It is well known in the art to coherently combine the data from the fingers of a rake.

21. Regarding claim 12, which inherits all of the limitations of claim 9, Nakayasu discloses a receiver wherein the rake finger and the rake are implemented with hardware elements, and wherein the low-rate path comprises: at least one low-rate finger to despread a multipath component of spread- spectrum signals comprising the fixed-rate channels (See figure 2 and rejection to claim 1). Nakayasu fails to disclose a receiver comprising a digital signal processor (DSP) to generate a channel estimation and to coherently combine symbols from the low-rate finger with the channel estimation. However, Narvinger discloses a receiver with a digital signal processor (DSP) to generate a channel estimation (See figure 6, block 106 and column 10, lines

25-29 and 37-39) and to coherently combine symbols from the low-rate finger with the channel estimation (See column 12, lines 35-43). It would have been obvious to one of ordinary skill in the art to use the DSP control unit and combiner of Narvinger in the apparatus of Nakayasu to correct the output from the rake.

22. Regarding claim 13, which inherits all of the limitations of claim 12, Nakayasu discloses a receiver. Nakayasu fails to disclose a receiver comprising a digital signal processor (DSP). However, Narvinger discloses a receiver with a digital signal processor (DSP) (control unit) wherein the DSP (control unit) assigns the high-rate finger a multi-path component of the several multi-rate channels and the at least one low-rate finger a multi-path component of the fixed-rate channels (See column 10, lines 25-29). It would have been obvious to one of ordinary skill in the art to use the control unit of Narvinger in the design of Nakayasu to assign the detected data to an appropriate rake unit.

23. Regarding claim 14, which inherits all of the limitations of claim 13 Nakayasu discloses a receiver wherein there is a plurality of high-rate rake fingers, each high-rate rake finger to despread a multipath component of each multi-rate channel. Nakayasu fails to disclose a receiver wherein each high-rate rake finger to despreads a multipath component of each multi-rate channel and wherein the digital signal processor performs time tracking to synchronize the high-rate fingers (See figure 9, block 412). However, Narvinger discloses time tracking. Neither Nakayasu nor Narvinger disclose frequency tracking. It would have been obvious to one of ordinary skill in the art to use frequency tracking alone with time tracking since frequency and time are directly related.

24. Regarding claim 15, which inherits all of the limitations of claim 14, Nakayasu discloses a receiver further comprising an interpolator to receive baseband samples from an analog front end and raise a sampling rate of the baseband samples to provide the baseband samples with an increased sampling rate to the high-rate path and the low-rate path for use by the rake fingers (See column 2, lines 53-58).

25. Regarding claim 16, which inherits all of the limitations of claim 2, Nakayasu discloses a receiver wherein the high-rate and low-rate paths are part of a low-level portion of the receiver which despreads and decodes the physical channels (See figure 2), and wherein the receiver further comprises a high-level portion to map the physical channels to transport channels (See column 1, lines 38-43).

26. Regarding claim 20, which inherits all of the limitations of claim 19, Nakayasu discloses a method of receiving multi-rate paths. Nakayasu fails to disclose a method further comprising: generating the corresponding spreading codes for despreading each of the several multi-rate channels; and multiplying the data symbols with the channel estimation for each of a plurality of multipath components; and combining multipath components of the multi-rate channels. However, Narvinger discloses a method comprising generating corresponding spreading codes (See figure 9, block 413) and a channel estimation (See figure 6, block 106 and column 10, lines 25-29 and 37-39), multiplying the data symbols with the channel estimation for each of a plurality of multipath components and coherently combining the symbols with the channel estimation (See column 12, lines 35-43). It would have been obvious to one of ordinary skill in the art to use the de-spreading code generator, DSP control unit and combiner of Narvinger in

the apparatus of Nakayasu to correct the output from the rake and to generate the spreading codes for each of the multi-rate channels to keep from having to store all of the possible codes.

27. Regarding claim 22, which inherits all of the limitations of claim 20, Nakayasu discloses a method of receiving multi-rate channels wherein despreading the multi-rate channels is performed by at least one high-rate rake finger implemented with hardware elements, and wherein despreading the fixed-rate channels is performed with at least one low-rate finger to despread a multipath component of spread-spectrum signals comprising the fixed-rate channels (See figure 2 and rejection to claim 1). Nakayasu fails to disclose a method of receiving multi-rate channels wherein a digital signal processor (DSP) generates a channel estimation and coherently combines symbols from the at least one low-rate finger with the channel estimation. However, Narvinger discloses a method wherein a digital signal processor (DSP) generates a channel estimation (See figure 6, block 106 and column 10, lines 25-29 and 37-39) and coherently combines symbols from the at least one low-rate finger with the channel estimation (See column 12, lines 35-43). It would have been obvious to one of ordinary skill in the art to use the DSP control unit and combiner of Narvinger in the apparatus of Nakayasu to correct the output from the rake.

28. Regarding claim 23, which inherits all of the limitations of claim 22, Nakayasu discloses a method of receiving a multi-rate channel. Nakayasu fails to disclose a method further comprising assigning, by the DSP, at least one high-rate finger a multi-path component of the several multi-rate channels, and at least one low-rate finger a multi-path component of the fixed-rate channels. However, Narvinger discloses a method wherein the DSP (control unit) assigns the high-rate finger a multi-path component of the several multi-rate channels and at least one

low-rate finger a multi-path component of the fixed-rate channels (See column 10, lines 25-29). It would have been obvious to one of ordinary skill in the art to use the control unit of Narvinger in the design of Nakayasu to assign the detected data to an appropriate rake unit.

29. Regarding claim 24, Nakayasu discloses a receiver to despread multi-rate spread-spectrum physical channels having a variable spreading factor and to despread fixed-rate spread-spectrum physical channels having a fixed spreading factor, the receiver comprising a high-rate path to receive the multi-rate channels (See column 1, lines 26-30 where the high rate path/multi-rate channel receives the visual data) and a low-rate path to receive the fixed-rate channels (See column 1, lines 26-30 where the low rate path/fixed rate channel receives the call data), the high-rate path comprises: a plurality of high-rate rake fingers (See figure 2) to despread a multi-path component of each multi-rate channel; and a high-rate rake (See figure 2) to read symbols from the high-rate rake fingers, and wherein the low-rate path comprises: at least one low-rate finger to despread a multipath component of spread-spectrum signals comprising the fixed-rate channels. Nakayasu fails to disclose a receiver wherein the high-rate path comprises: a high-rate rake to multiply the symbols by a channel estimation, and combine the multi-path components from each rake finger, and wherein the low-rate path comprises: a digital signal processor (DSP) to generate a channel estimation and to coherently combine symbols from the at least one low-rate finger with the channel estimation. However, Narvinger discloses a receiver wherein the high-rate path comprises: a high-rate rake to multiply the symbols by a channel estimation, and combine the multi-path components from each rake finger, and wherein the low-rate path comprises: a digital signal processor (DSP) to generate a channel estimation and to coherently combine symbols from the at least one low-rate finger with the channel estimation. It would

have been obvious to one of ordinary skill in the art to use the digital signal processor and coherent combiner of Narvinger in the receiver of Nakayasu in order to correct the output from the rake.

30. Regarding claim 25, which inherits all of the limitations of claim 24, Nakayasu discloses a receiver wherein the high-rate rake fingers comprise: a set of correlators (See figure 2, block 211), each correlator to despread one multi-rate channel of the several received multi-rate channels with a corresponding spreading code (See column 3, lines 42-52); a framer to separate control symbols and data symbols for each of the despread multi-rate channels (See Column 3, lines 53-58); a buffer for each multi-rate channel to store the control and data symbols for the corresponding multi-rate channel (See column 4, lines 4-8). Nakayasu fails to disclose a code generator to generate the corresponding spreading codes for despreading each of the several multi-rate channels. However Narvinger discloses a rake receiver that further comprising a de-spreading code generator to generate the corresponding spreading codes for despreading each of the several multi-rate channels (See figure 9, block 413). It would have been obvious to one of ordinary skill in the art to use the de-spreading code generator of Narvinger in the design of Nakayasu to generate the spreading codes for each of the multi-rate channels to keep from having to store all of the possible codes.

31. Claims 2, 7, 8, 21 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakayasu, US Patent No. 6,515,979 in further view of *Bit Error Probability Analysis for Frames WDCMA Downlink Receivers,* IEEE Transactions on Vehicular Technology, Volume 47, Number 4, November 1998 by Matti Latva-aho.

32. Regarding claim 2, which inherits all of the limitations of claim 1, Nakayasu discloses a CDMA receiver wherein the high-rate path despreads spread-spectrum multi-rate physical channels having a variable spreading factor and the low-rate path despreads fixed-rate spread-spectrum physical channels having a fixed spreading factor (See column 1, lines 26-30). Nakayasu fails to disclose a receiver wherein the receiver is a wideband code division multiple access (WCDMA) receiver. However, Latva-aho discloses a receiver wherein the receiver is a wideband code division multiple access (WCDMA) receiver. It would have been obvious to one of ordinary skill in the art to use the design of Nakayasu a WCDMA receiver as disclosed by Latva-aho since it is still a CDMA receiver.

33. Regarding claim 7, which inherits all of the limitations of claim 1, Nakayasu discloses a receiver for receiving multi-rate channels. Nakayasu fails to disclose a receiver wherein the multi-rate channels have a spreading factor ranging approximately from 4 to 256, and the fixed-rate channels has a spreading factor of approximately 256. However, Latva-aho discloses a receiver where technical parameters are given including a spreading factor range of 4 to 256 (See page 1120, column 1). It would have been obvious to one of ordinary skill in the art to use the spreading factor range of 4-256 in the design of Nakayasu in order to appropriately support the technology that is available.

34. Regarding claim 8, which inherits all of the limitations of claim 7, Nakayasu discloses a receiver. Nakayasu fails to disclose a receiver wherein the multi-rate channels have a bit-rate ranging approximately from 30 - 960 kbps, and the fixed-rate channels have a bit- rate of approximately 30 kbps. However, Latva-aho discloses a receiver where technical parameters are given including a bit-rate range of 16 kbps to 1.024 Mbps (See page 1120, column 1), which

encompasses the range, 30-960 kbps. It would have been obvious to one of ordinary skill in the art to use the disclosed range of Latva-aho in the design of Nakayasu in order to appropriately support the technology that is available.

35. Regarding claim 21, which inherits all of the limitations of claim 17, Nakayasu discloses a method for receiving multi-rate channels. Nakayasu fails to disclose a method wherein the multi-rate channels have a spreading factor ranging approximately from 4 to 256, and the fixed-rate channels has a spreading factor of approximately 256. However, Latva-aho discloses a receiver where technical parameters are given including a spreading factor range of 4 to 256 (See page 1120, column 1). It would have been obvious to one of ordinary skill in the art to use the spreading factor range of 4-256 in the method of Nakayasu in order to appropriately support the technology that is available.

36. Regarding claim 26, which inherits all of the limitations of claim 25, Nakayasu discloses a receiver wherein each multi-rate channel has a different spreading code allowing for the substantially simultaneous reception of several multi-rate channels (See figure 2 and column 3, line 53 to column 4, line 4). Nakayasu fails to disclose a receiver wherein the multi-rate channels have a spreading factor ranging approximately from 4 to 256, and the fixed-rate channels has a spreading factor of approximately 256. However, Latva-aho discloses a receiver where technical parameters are given including a spreading factor range of 4 to 256 (See page 1120, column 1). It would have been obvious to one of ordinary skill in the art to use the spreading factor range of 4-256 in the design of Nakayasu in order to appropriately support the technology that is available.

Conclusion

37. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 5,805,585 to Javitt et al. discloses a method for providing high speed packet data services for a wireless system.

38. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krista M. Flanagan whose telephone number is (571) 272-2203. The examiner can normally be reached on Monday - Friday, 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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4/1/05